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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/087,771	03/05/2002	Hideyuki Yamamoto	500.41372X00	7450
20457	7590	07/16/2004		
ANTONELLI, TERRY, STOUT & KRAUS, LLP 1300 NORTH SEVENTEENTH STREET SUITE 1800 ARLINGTON, VA 22209-9889			EXAMINER HASSANZADEH, PARVIZ	
			ART UNIT 1763	PAPER NUMBER

DATE MAILED: 07/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/087,771

Applicant(s)

YAMAMOTO ET AL.

Examiner

Parviz Hassanzadeh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 May 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) 8-11 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 March 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3/5/02 and 5/27/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

Election/Restrictions

Applicant's election with traverse of apparatus claims 1-7 in the reply filed on 5/27/04 is acknowledged. The traversal is on the ground(s) that the method cannot be practice by a system detecting composition of plasma rather than detecting light before and during processing of a workpiece. The Examiner present that the apparatus as claimed could be used in determining the state of deposition on the interior surface of a reactor rather than the state of plasma or the workpiece. The requirement is still deemed proper and is therefore made FINAL.

Claims 8-11 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected method, there being no allowable generic or linking claim.

Applicant timely traversed the restriction (election) requirement in the reply filed on 5/27/04.

Specification

The disclosure is objected to because of the following informalities: on page 14, line 23, it is suggested to change 202 to 201; and on page 19, line 21, it is suggested to change 403 to 405. Appropriate correction is required.

Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference character(s) mentioned in the description: gas supply unit 2, gas exhaust unit 3 and plasma generating unit 6 cited on page 10, lines 15-25, page 11, lines 14, 18, page 12, line 21. Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is

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being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

Claim 7 is objected to because of the following informalities: inline 3 of claim 7, it is suggested delete "receiving" between "emitting" and "means". Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 3 and 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sasaki et al (JP 5-259250-A) in view of Masuda et al (US Patent No. 6,245,190 B1).

Sasaki et al teach a plasma processing apparatus (Fig. 1) for processing a wafer using plasma generated in a chamber 3, the apparatus comprising:

spectrometers 9 and 10 (light receiving means mounted on the chamber for receiving light inside the chamber; and

a light source 7 (a light emitting means for emitting light having a predetermined output into the chamber, the light emitting means emitting light having the predetermined output before or after processing the workpiece);

wherein the state of plasma is monitored by the spectrometers and a correction due to deposition on the interior surface of the chamber, represented by the deposition on view port windows 4a and 4b, is made using spectrometer 9 recording spectrum of the light from light source 7 passing through windows 4a and 4b (abstract and paragraphs 0016-0020).

Sasaki et al fail to teach a light transmissive member (internal cover, liner) disposed in the chamber, the workpiece being disposed inside the member.

Masuda et al teach a plasma processing apparatus (Fig. 1) wherein an internal cover 13 is disposed in the chamber in order to prevent exposure of internal metal portion of process chamber 10 to plasma, the internal cover is made of quartz (column 11, lines 16-40).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to implement the internal cover as taught by Masuda et al in the apparatus of Sasaki et al in order to protect the internal surface of the chamber from being exposed to plasma.

Further regarding claims 1, 3: the changes in the state of plasma is related to the state of processing the wafer.

Further regarding claims 5, 7: the apparatus of Sasaki et al includes a light source 7 used before or after the plasma processing of the wafer in order to made correction on the measures spectrum. Mounting the light source 7 and the spectrometers 9 and 10 to the chamber is considered an obvious design choice that would have been obvious to one or ordinary skill in the art at the time of the invention (abstract and paragraphs 0016-0020).

Further regarding claim 6: further inclusion of a reflection device (means) between the chamber and the light transmissive member so that the light emitted from the light emitting source 7 (light emitting means) is reflected toward the spectrometer 10 (light receiving means) instead of spectrometer 9 is considered as an obvious modification and within the scope of teaching by the Sasaki et al for direction the light to one of the spectrometer.

Claims 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sasaki et al (JP 5-259250-A) in view of Masuda et al (US Patent No. 6,245,190 B1) as applied to claims 1, 3 and 5-7 above, and further in view of Koshimizu et al (US Patent No. 5,980,767).

Sasaki et al in view of Masuda et al teach all limitations of the claims as discussed above except for the operation of system is controlled using the optical monition system.

Koshimizu et al teach a plasma processing system (Fig. 1) including a control unit 40 by which the operation of the plasma processing chamber 11 is controlled in response to an optical monitoring unit 30 (column 6, lines 15-36).

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Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the control unit as taught by Koshimizu et al in the apparatus of Sasaki et al in view of Masuda et al in order to control the operation of the processing apparatus in response to the state of plasma.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Parviz Hassanzadeh whose telephone number is (571)272-1435. The examiner can normally be reached on Tuesday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on (571)272-1439. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

P. Hassanzadeh
Parviz Hassanzadeh
Primary Examiner
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July 9, 2004